INSTRUCTIONS
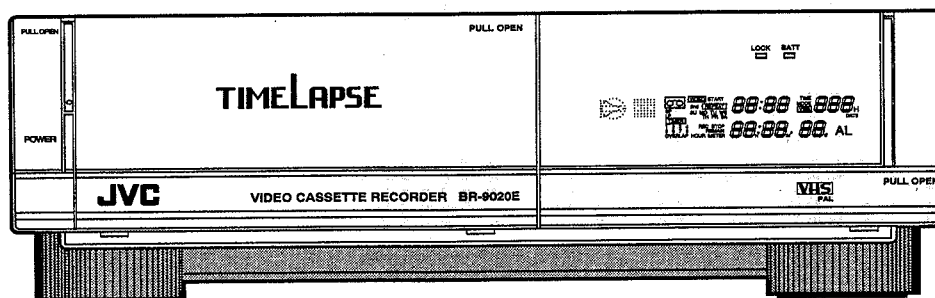
JVC

BR-9020E

TIMELAPSE VIDEO CASSETTE RECORDER
LANGZEIT-VIDEOREKORDER
MAGNETOSCOPE A CASSETTE A LAPS DE TEMPS

VHS
PAL

PULL OPEN   PULL OPEN   LOCK BATT

TIMELAPSE

POWER

JVC   VIDEO CASSETTE RECORDER BR-9020E   VHS   PULL OPEN
                                                          PAL

SAFETY PRECAUTIONS

CONFIDENTIAL

This page contains information that should be kept confidential. Please detach and keep in a safe place.

Operation Lock
To prevent unauthorised operation or tampering, you can lock the recorder in its current mode and render all controls inoperative.

1. Set the recorder for operation in the Record or Play mode.
2. Pull open the panel on the left (labelled "POWER").
3. Press the TIMELAPSE MODE + button while pressing the OPERATION LOCK button.
   - The LOCK indicator will light.
   - The recorder's controls are locked. Operation will continue in the present mode until the lock function is disengaged or the tape ends. After operation stops, the controls will remain locked.
4. To disengage the lock function, press the OPERATION LOCK and TIMELAPSE MODE + buttons simultaneously.

Alarm/Power loss memory resetting
To reset the alarm/power loss memory, press the ALARM/PL RESET button once. (Press the button twice if the "AL" indicator is lit.) All alarm and power loss data will be cleared.

VERTRAULICH

Diese Seite enthält vertrauliche Informationen. Sie sollten diese Seite daher heraustrennen und an einem sicheren Ort aufbewahren.

Sperrschalter
Um diesen Rekorder vor unbefugter Handhabung zu schützen, kann die eingestellte Betriebsart verriegelt werden. Hierbei sind alle Bedienungselemente abgeschaltet.

1. Den Rekorder auf Wiedergabe oder Aufnahme schalten.
2. Die links befindliche, mit POWER bezeichnete Klappe öffnen.
3. Bei gedrückt gehaltener OPERATION LOCK-Taste die TIMELAPSE MODE-Taste + drücken.
   - Die LOCK-Anzeige leuchtet.
   - Alle Rekorder-Bedienungselemente sind gesperrt. Die eingestellte Funktion wird beibehalten, bis die Sperrfunktion wieder abgeschaltet bzw. bis das Bandende erreicht wird. Auch nach vollständiger Funktionsausführung bleiben alle Bedienungselemente gesperrt.
4. Zur Abschaltung der Sperrfunktion gleichzeitig die OPERATION LOCK-Taste und die TIMELAPSE MODE-Taste + drücken.

Alarm/Stromausfall-Speicher-Rückstellung
Zur Rückstellung des Alarm/Stromausfall-Speichers die ALARM/PL RESET-Taste einmal drücken. (Bei leuchtender AL-Anzeige diese Taste zweimal drücken.) Alle Alarm- und Stromausfalldaten werden gelöscht.

CONFIDENTIEL

Cette page contient des informations qui doivent rester confidentielles. Veuillez la détacher et la garder dans un endroit sûr.

Verrouillage du fonctionnement
Pour éviter une utilisation ou des altérations non autorisées, vous pouvez verrouiller le magnétoscope dans son mode actuel et rendre toutes les commandes inutilisables.

1. Régler le magnétoscope pour le fonctionnement en mode d'enregistrement ou de lecture.
2. Ouvrir complètement le panneau de gauche (étiqueté "POWER").
3. Appuyer sur la touche TIMELAPSE MODE + tout en appuyant sur la touche OPERATION LOCK.
   - L'indicateur LOCK s'allumera.
   - Les commandes du magnétoscope sont verrouillées. Le fonctionnement continuera dans le mode actuel jusqu'à ce que la fonction de verrouillage soit désactivée ou quand la bande se termine. Une fois le fonctionnement arrêté, les commandes restent verrouillées.
4. Pour désactiver la fonction de verrouillage, presser les touches OPERATION LOCK et TIMELAPSE MODE + simultanément.

Remise à zéro de la mémoire d'alarme/perte d'alimentation
Pour réinitialiser la mémoire d'alarme/perte d'alimentation, presser une fois la touche ALARM/PL RESET. (Presser deux fois la touche si l'indicateur "AL" est allumé.) Toutes les données d'alarme et de perte d'alimentation seront annulées.

CONTENTS

PRECAUTIONS

VCR

- Avoid using the recorder in places subject to the following conditions:
  - extreme heat, cold, or humidity,
  - dust,
  - near appliances generating strong magnetic fields,
  - vibrations, and
  - poor ventilation.
- Be careful of moisture condensation.
  Do not use the recorder immediately after moving it from a cold place to a warm place. The water vapour in warm air will condense on the still-cold video head drum and tape guides and may cause damage to the tape and the recorder.
- Handle the recorder carefully.
  - Do not block the ventilation openings.
  - Do not place anything heavy on the recorder.
  - Do not place anything which might spill on the top cover of the recorder.
  - Use in horizontal (flat) position only.
- During transportation,
  - Avoid violent shocks to the recorder during packing and transportation.
  - Before packing, be sure to remove the cassette from the recorder.

VIDEO CASSETTES

- This recorder uses VHS cassettes.
- Do not use tapes that are longer than the E-180.
- Avoid exposing the cassettes to direct sunlight. Keep them away from heaters.
- Avoid extreme humidity, violent vibrations or shocks, strong magnetic fields (near a motor, transformer or magnet) and dusty places.
- Place the cassettes in cassette cases and position vertically.

DAILY CHECK

For smooth, trouble-free operation, check the recorder every day to make sure that it's working properly.
- Make sure the input signal is clear and stable. Record the signal and play it back to confirm that the recording system is in good working order.
  To quickly check recording conditions, press the REC CHECK button during recording.
- Check the alarm recording switch by tripping an alarm sensor. Verify that alarm recording takes place.
- Make sure that the wiring to each alarm sensor or camera (with alarm sensors) is undamaged. Trip each alarm sensor in succession and confirm that the sensor activates the alarm and puts the recorder in the Alarm Record mode.

AVAILABLE RECORDING TIMES

- Selectable with the TIMELAPSE MODE +/- buttons.
- Available recording times may vary with different tapes.

Display	Mode	Recording time					Recording/ playback interval	Audio recording
		E-30	E-60	E-90	E-120	E-180		
000 H	One-shot	—	—	—	—	—	Max. 3 min	No
003 H	VHS SP	30 min	1 hour	1 h 30 min	2 hours	3 hours	—	Yes
006 H	VHS LP	1 hour	2 hours	3 hours	4 hours	6 hours	—	Yes
024 H	TL/24	4 hours	8 hours	12 hours	16 hours	24 hours	0.16 sec	No
048 H	TL/48	8 hours	16 hours	24 hours	32 hours	48 hours	0.32 sec	No
072 H	TL/72	12 hours	24 hours	36 hours	48hours	72 hours	0.48 sec	No
120 H	TL/120	20 hours	40 hours	60 hours	80 hours	120 hours	0.8 sec	No
168 H	TL/168	28 hours	56 hours	84 hours	112 hours	168 hours	1.12 sec	No
240 H	TL/240	40 hours	80 hours	120 hours	160 hours	240 hours	1.6 sec	No
480 H	TL/480	80 hours	160 hours	240 hours	320 hours	480 hours	3.2 sec	No
960 H	TL/960	160 hours	320 hours	480 hours	640 hours	960 hours	6.4 sec	No

FEATURES

Recording mode flexibility
Recording is possible for up to 960 hours (40 days) in the timelapse mode, with recording times also selectable from 24, 48, 72, 120, 168, 240, and 480 hours. You can choose a recording time to suit virtually any situation whether it's for a bank demanding 7-day coverage (168-hour mode) or a manufacturing operation closed down for the summer holidays (480/960-hour mode). Timelapse playback circuitry is also provided. For special requirements, one-shot field recording is possible with user-designated durations. Added versatility is provided by 14-day/8-event timer recording capability. This can be used in combination with timelapse recording to give you automatic coverage at specified times on a daily or weekly basis. For even greater flexibility, you can preset the recorder not to record on specified dates.

Alarm recording with alarm/power-loss memory
For greater reliability, the BR-9020E features advanced alarm recording and alarm search capabilities. Whenever an alarm signal is received, the pre-selected VHS Standard (SP) or Long Play (LP) continuous record mode is automatically activated for uninterrupted real-time recording of the alarm situation. To enable easy, high-speed retrieval of each alarm recording, VISS index codes are automatically recorded on the tape whenever alarm recording starts. Recording time per alarm is selectable from 5 seconds, 10 seconds, 15 seconds, 30 seconds, 60 seconds, 180 seconds, to tape end, or for the duration of alarm signal input. Reliability is further enhanced by a 999-event alarm memory and 99-event power-loss memory with exact time and date available for the first recorded incident, as well as the last three. This data will help you pinpoint peak problem periods and can be checked at any time by calling up the on-screen display.

Other Features
- On-screen setup menu and mode display
- Sensor recording function
- Series recording capability
- Recording check function for instant playback quality check during recording
- Auto head-cleaning mechanism
- Advanced mode lock system
- Time/date generator with position control and power backup
- Summer time compensation function
- Camera switching signal output with selectable intervals
- Clock calibration terminals for automatic adjustment of all connected VCR clocks to precisely the same time
- Video mode select switch
- Auto-repeat recording and playback
- Still and field advance
- Shuttle Search
- Reverse, double-speed, and timelapse mode playback
- Auto-reset recording after power failure
- Front panel cover to protect cassette slot and controls from the environment
- Digital hour meter up to 9999 hours
- Electronic buzzer to signal start of alarm recording
- Electronic buzzer for tape-end warning
- Through output of EE input with power off (composite video signal only)
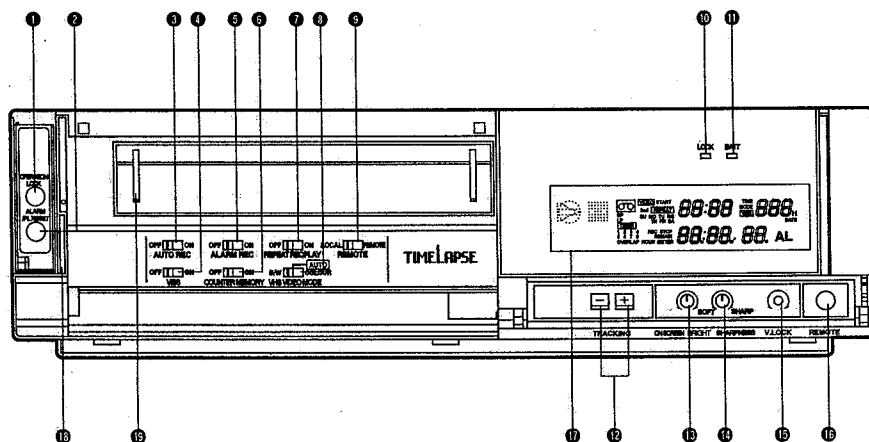- Wired remote control (optional)

OPTIONAL RS-232C INTERFACE BOARD (SA-K90E)

With the optional RS-232C interface board (SA-K90E) in the BR-9020E, direct interface with a personal computer is possible. This permits easy incorporation in a centralised security system and makes possible more precise programming of timelapse mode switching.

CONTROLS AND CONNECTORS

❶ OPERATION LOCK button

❷ ALARM/PL RESET button

❸ AUTO REC switch
ON: To automatically restart recording when power is restored after a power failure. Also set to this position when recording with an external timer.
OFF: To disable automatic recording function. To avoid accidental erasure of recorded tapes, be sure to set to this position if you don't require automatic recording.

❹ VISS (VHS Index Search System) switch
ON: To automatically locate recorded index codes in the Rewind or Fast-Forward mode. When used with alarm-recorded tapes, the beginning of the nearest alarm recording is located.
OFF: Normally set to OFF.
Note:
● This function will not operate during rewind in Auto Rewind mode and Repeat Recording/Playback mode.

❺ ALARM REC switch
ON: To switch from the timelapse recording mode to the 3-hour (VHS SP) or 6-hour (VHS LP) recording mode when an alarm signal is input. Alarm recording duration can be selected from 5 sec., 10 sec., 15 sec., 30 sec., 60 sec., 180 sec., to tape end, or for the duration of alarm signal input.
OFF: To continue recording in the same mode when an alarm signal is input.

❻ COUNTER MEMORY switch
ON: Tape automatically stops at counter reading zero in the Rewind or Fast Forward mode.
OFF: To defeat counter memory function.

Note:
● The counter memory does not function when the next-function memory, repeat recording/playback, or VISS index search is in use.

❼ REPEAT REC/PLAY switch
ON: To repeat recording or playback. When the end of the tape is reached, the tape is rewound to the beginning and recording or playback automatically restarts.
OFF: No repeat operation.

❽ VHS VIDEO MODE select switch
This applies to both recording and playback.
COLOUR: Set to this position when the input or playback video signal is in colour.
AUTO: Set to this position for automatic switching between colour and black/white modes according to the type of signal. Normally set to this position.
B/W: Set to this position when the input or playback video signal is monochrome.
Note:
● When monochrome video signals are reproduced in the Still mode with this switch set to AUTO, colour noise may appear. In this case, set the switch to B/W.

❾ REMOTE/LOCAL select switch
LOCAL: Set to this position to control the recorder with its own function buttons. Operation via a connected remote control unit or computer is not possible.
REMOTE: Set to this position to control the recorder via a connected remote control unit or computer. (The recorder's function buttons can still be used when the switch is set to this position.)

❿ LOCK indicator
● Lights when the Operation Lock mode is engaged.

⓫ BATTERY indicator
● Lights if no TDG backup batteries have been installed.
● Lights when TDG backup battery power drops to a level requiring replacement. Replace the backup batteries with new R6/AA/UM-3 batteries.

⓬ TRACKING (+/–) buttons
● To adjust tracking to minimise noise bars in playback picture.
● Press both buttons simultaneously to reset tracking to normal.
● Tracking is automatically reset when a cassette is ejected or the power is switched off.

⓭ ON SCREEN BRIGHT control
● To adjust brightness of time/date characters superimposed on the picture. Turn clockwise to increase brightness, and counterclockwise to reduce brightness.

⓮ SHARPNESS control
● Turn for a softer or sharper playback picture.

⓯ V-Lock control
● Using a screwdriver turn to eliminate vertical jitter in still and timelapse playback pictures.
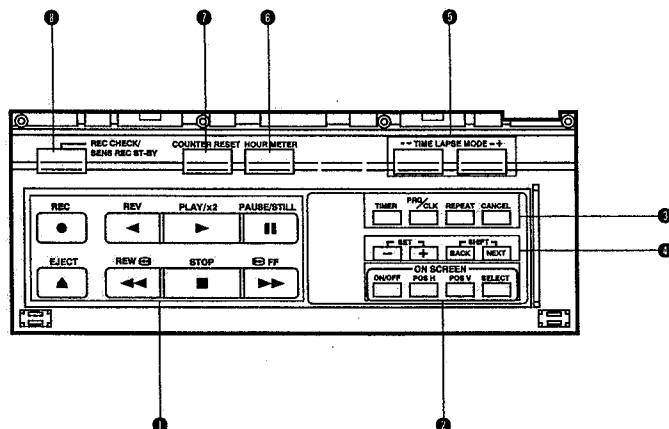
⓰ REMOTE terminal (RCA)
● Connect the optional remote control unit (RM-G30U) to this terminal.

⓱ FDP (Fluorescent Display Panel)

⓲ POWER button with LED indicator

⓳ Cassette loading slot

FOLDOUT CONTROL PANEL

❶ Operation buttons

REV button
- Starts reverse playback at normal speed.

REC button
- Starts recording.
- Activates the off-timer when pressed in the Record mode. (☞ p. 27)

EJECT button
- Ejects the cassette.

REW button
- Starts tape rewind when pressed in the Stop mode.
- Starts high-speed reverse shuttle search when pressed in the Play mode.
- Starts alarm search in the reverse direction if the front panel VISS switch ❹ is set to ON. (☞ p. 32)

PLAY/X2 button
- Starts playback.
- Starts double-speed playback when pressed in the Play mode.
- Re-starts normal playback when pressed in the Still, Double-speed, or Search mode.
- Re-starts recording when pressed in the Record-Pause mode.

STOP button
- Stops the tape.

PAUSE/STILL button
- Temporarily stops recording when pressed in the Record mode.
- Displays a still picture when pressed in the Play mode.
- Starts one-shot recording when pressed in the One-shot Recording Standby mode. (☞ p. 25)

FF button
- Starts tape fast forward when pressed in the Stop mode.

- Starts high-speed forward shuttle search when pressed in the Play mode.
- Starts alarm search in the forward direction when the front panel VISS switch ❹ is set to ON. (☞ p. 32)

❷ ON SCREEN buttons
To select on-screen modes and character position.

ON/OFF button
ON: To record time/date information together with the input signal and superimpose it on the picture.
OFF: To defeat recording and superimposition of time/date information.

POS H button
- To horizontally shift superimposed time/date characters.

POS V button
- To vertically shift superimposed time/date characters.

SELECT button
- To select the On-Screen Display mode. Six different displays are available (☞ p.14 "On-Screen Display and Setup Menu").

❸ TIMER/TDG buttons
To set the timer and time/date generator.

TIMER button
- Engages the Timer Standby mode after the 14-day/8-event timer has been programmed.

PROGRAM/CLOCK button
- Switches the display mode between Clock mode, Clock Set mode, and Timer Set mode.

REPEAT button
- To select weekly and daily timer programming options.

CANCEL button
- Engages the Cancel Program mode.
- Cancels programmed timer data.

❹ SET/SHIFT buttons
SET (+/−) buttons
- To set data in the Clock Set, Timer Set, or Setup Menu mode.
SHIFT (NEXT/BACK) buttons
- To select items in the Clock Set, Timer Set, or Setup Menu mode.

❺ TIMELAPSE MODE (+/−) buttons
To select tape speed in recording and playback. The selected mode is indicated on the display panel.
Display
000 H : One-shot recording
003 H : VHS SP mode
006 H : VHS LP mode
024 H : Timelapse 24-hour mode
048 H : Timelapse 48-hour mode
072 H : Timelapse 72-hour mode
120 H : Timelapse 120-hour mode
168 H : Timelapse 168-hour mode
240 H : Timelapse 240-hour mode
480 H : Timelapse 480-hour mode
960 H : Timelapse 960-hour mode

❻ HOUR METER button
- Displays the total VCR operating time on the display panel (up to 9999 hours). To cancel the hour meter display, press it again. (☞ p. 13)

❼ COUNTER RESET button
- Resets the counter on the display panel to zero.

❽ REC CHECK/SENS REC ST-BY button
- When pressed during recording, plays back the last recorded segment in reverse for about 2 seconds, and then resumes recording. (REC CHECK)
- When pressed in the Stop mode, engages the Sensor Recording Standby mode when on-screen setup menu item "SENSOR REC" is set to "ON". (For "SENSOR RECORDING", ☞ p. 25)

REAR PANEL
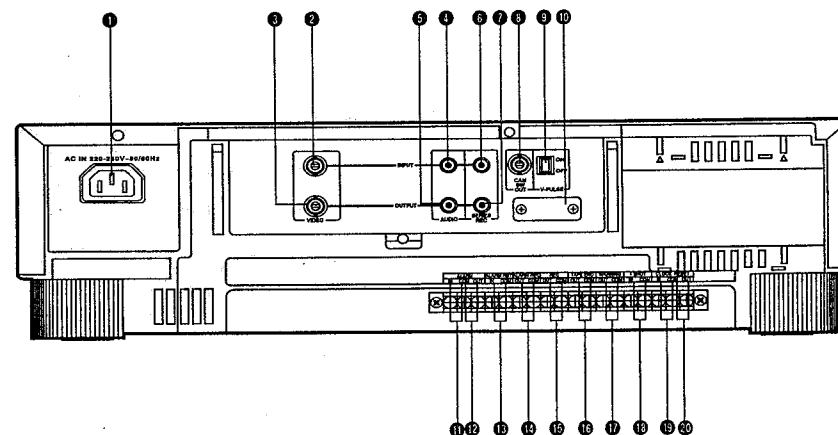
❶ AC input socket (AC IN 220V-240V)
Connect the provided power cord.
- Connect to a 220V-240V AC, 50/60 Hz power outlet.

❷ VIDEO IN connector (BNC)
❸ VIDEO OUT connector (BNC)
Outputs the signal input to the VIDEO IN connector ❷ even when power is off.

❹ AUDIO IN connector
❺ AUDIO OUT connector

❻ SERIES REC IN terminal
- Connect to the SERIES REC OUT terminal of another recorder for series recording. When the tape in the preceding recorder reaches the end, a signal will be delivered to this terminal. Recording will start automatically.

❼ SERIES REC OUT terminal
- Connect to the SERIES REC IN terminal of another recorder for series recording. When the tape in this recorder reaches the end, a signal will be delivered to the connected recorder for automatic start of recording.

Left column

❽ CAMERA SW OUT connector
- Connect to a sequential camera switcher to deliver a command signal for camera switching.

Note:
Low active pulse, width: 5 m sec.

❾ V.PULSE switch
- ON: Set to this position when using non-interlaced cameras. Vertical dancing of the playback picture will be reduced.
- OFF: No effect. Normally set to this position.

❿ DIP switches
Use these switches when the optional RS-232C interface board SA-K90E is installed.
- Be sure to turn the power off before setting.

SW 1 — 3: Selects RS-232C data transmission speed.

	600 (bps)	1200 (bps)	2400 (bps)	4800 (bps)	9600 (bps)
SW-1	ON	ON	ON	OFF	OFF
SW-2	ON	ON	OFF	ON	OFF
SW-3	ON	OFF	OFF	OFF	OFF

SW 4 — 8: Not used.

⓫ ALARM IN/COM terminals
- Connect to an external sensor for alarm signal input.

⓬ ALARM OUT/COM terminals
- Outputs the alarm signal input to ALARM IN.

⓭ ALARM RST IN/COM terminals (Alarm reset)
- Cancels alarm recording but does not cancel alarm input data.

⓮ ALARM REC OUT/COM terminals
- Outputs +12 V during alarm recording.

⓯ REC OUT/COM terminals
- Outputs +12 V during recording.

⓰ TAPE END OUT/COM terminals
- Outputs +12 V during recording. Drops to 0 V (GND level) when tape end is detected.
- Connect to an external alarm lamp or buzzer.
- To cancel output, press EJECT, PLAY, FF, or REW.
- When VCR detects tape end during auto repeat recording or recording in Auto Rewind mode, the pulse is output for about 2 seconds.

⓱ WARNING OUT/COM terminals
- Outputs a warning signal when a malfunction occurs in the mechanism or while the tape is running.

⓲ 1 SHOT IN/COM terminals
- Connect to a remote control switch for one-shot field recording.

⓳ CLOCK RESET IN/COM terminals
- Connect to another BR-9020E's CLOCK RESET OUT terminal to automatically reset the clock. When the IN and COM terminals are short-circuited, the seconds will be reset to "00". If more than 30 seconds elapse when resetting, the minutes will advance. The clock time (hours, minutes, seconds) is displayed on the screen.
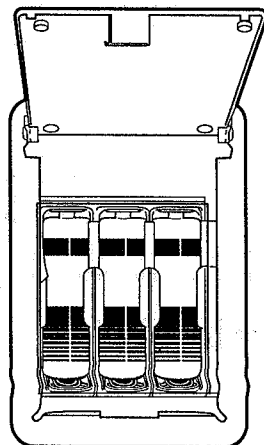 eg. 10:35:29 → 10:35:00
      10:35:30 → 10:36:00

⓴ CLOCK RESET OUT/COM terminals
- Outputs 0 V (GND level) at 12:00 AM and 12:00 PM for automatic adjustment of all connected VCR clocks.
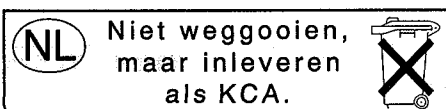
TOP PANEL

(TOP PANEL SECTION)

❶ Battery holder
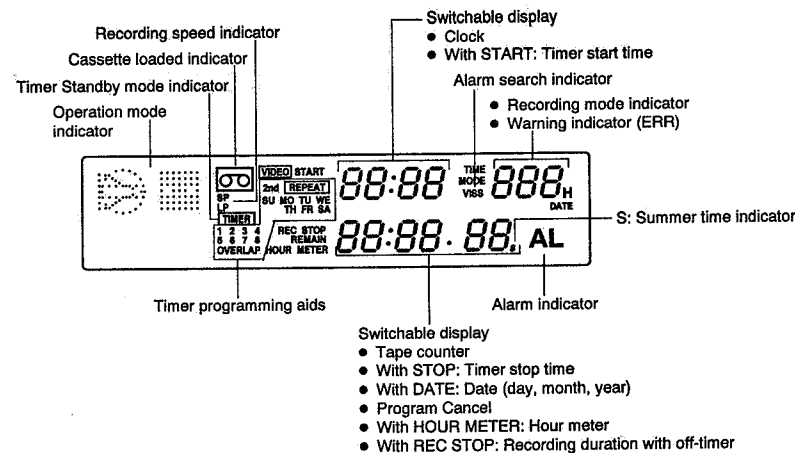- Insert TDG backup batteries (R6/AA/UM-3) in here.

NOTES:
- Batteries must be replaced once a year.
- When the backup batteries have been in use for a long period, check the time and date to confirm that data is correct.
- When the BATTERY indicator on the front panel is lit, the batteries must be replaced.

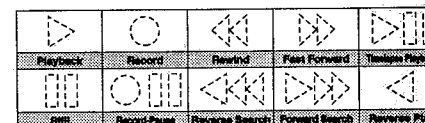The indication and mark shown below applies only to Holland.

(NL) Niet weggooien, maar inleveren als KCA.

DISPLAYS

FLUORESCENT DISPLAY PANEL

Recording speed indicator
Cassette loaded indicator
Timer Standby mode indicator
Operation mode indicator

Switchable display
- Clock
- With START: Timer start time

Alarm search indicator
- Recording mode indicator
- Warning indicator (ERR)

S: Summer time indicator

Timer programming aids

Alarm indicator

Switchable display
- Tape counter
- With STOP: Timer stop time
- With DATE: Date (day, month, year)
- Program Cancel
- With HOUR METER: Hour meter
- With REC STOP: Recording duration with off-timer

Tape Operation Mode Indicators

| Playback	Record	Rewind	Fast Forward	Textwise Playback
Still	Record-Pause	Reverse Search	Forward Search	Reverse Play

HOUR METER DISPLAY

The BR-9020E incorporates an the hour meter which can display total drum rotating hours.

1. Press POWER to turn the VCR power on.
2. Press the HOUR METER button.
   - Counter display changes to display total drum rotating hours.
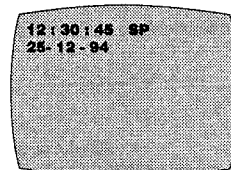3. Press again to cancel.

HOUR METER button

Hour meter display

12
13
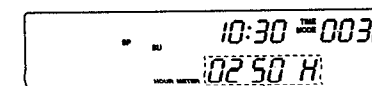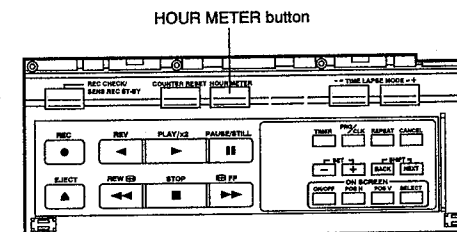
ON-SCREEN DISPLAY AND SETUP MENU

To check time and date, or alarm/power-loss memory data, use the on-screen display. The setup menu is also available on-screen.

1. Turn on the VCR and monitor.
   On-screen page 1 appears.
   Page 1: Time, date, and recording speed.
   ● If nothing is displayed, press ON SCREEN ON/OFF.

On-screen page 1

2. Press ON SCREEN SELECT.
   On-screen page 2 appears.
   Page 2: Time, date, and recording speed, plus alarm input and power loss totals.
   ● On-screen page 2 will appear if ON SCREEN SELECT is pressed when no on-screen indication is on the monitor screen.
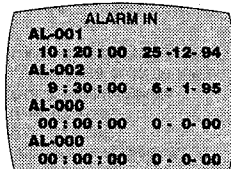   **Note:**
   ● The positions of on-screen pages 1 and 2 can be moved with the POS H/POS V button (see page 10).
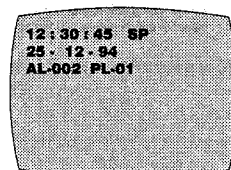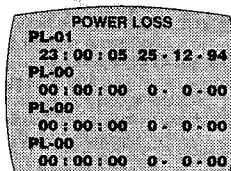

On-screen page 2

3. Press ON SCREEN SELECT.
   On-screen page 3 appears.
   Page 3: ALARM IN data with time and date for the first alarm input and the last three.
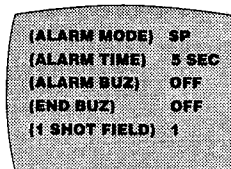

On-screen page 3

4. Press ON SCREEN SELECT.
   On-screen page 4 appears.
   Page 4: POWER LOSS data with time and date for the first power loss and the last three.

On-screen page 4

5. Press ON SCREEN SELECT.
   On-screen page 5 appears.
   Page 5: Setup Menu.

On-screen page 5

To change the setting, select the item with the SHIFT NEXT or BACK button and set the data with the SET "+" or "–" button. Available settings are as follows:

ALARM MODE: SP ↔ LP
ALARM TIME: 5 SEC → 10 SEC → 15 SEC → 30 SEC → 60 SEC → 180 SEC → TAPE E (End) → MANUAL (during alarm input) → 5 SEC...
ALARM BUZ: OFF ↔ ON
END BUZ: OFF ↔ ON
1 SHOT FIELD: 1 → 2 → 5 → 10 → 1 ... (☞ p.25)

NOTES:
● The buzzer for tape-end beeps for about 3 minutes (during recording).
● To stop the buzzer, set menu item "END BUZ" to OFF, or press either STOP or POWER.
● If "ALARM TIME" is set to "MANUAL", index codes will not be properly recorded on alarm recordings of less than 30 seconds.

6. Press ON SCREEN SELECT.
   On-screen page 6 appears.
   Page 6: Setup Menu.

To change the setting, select the item with the SHIFT NEXT or BACK button and set the data with the SET "+" or "–" button. Available settings are as follows:

AUTO REW: OFF ↔ ON
CAM SW: OFF → 1 FIELD → 1 FRAME → 2 FRAMES → 25 FRAMES → 50 FRAMES → OFF ...
SERIES REC: OFF ↔ ON
SENSOR REC: OFF ↔ ON
SUMMER TIME: OFF ↔ ON
   OFF ... Does not execute summer time compensation.
   ON ... Executes summer time compensation (time advances one hour).

CAM SW setting
When recording with several cameras using a sequential switcher, be sure to set the camera switching interval ("CAM SW") to an item other than "OFF". Camera switching is not possible if "CAM SW" is left set to its initial setting ("OFF"). Set to "OFF" only when using a single camera and no camera switching is required.

NOTES:
● Repeat recording/playback is automatically engaged regardless of the setting of "AUTO REW" if the REPEAT REC/PLAY switch is set to ON.
● When "AUTO REW" is set to "ON", set the COUNTER MEMORY switch to OFF.
● When engaging recording or alarm recording in the VHS LP mode, set the camera switching interval (CAM SW) to at least 1 frame.
● The on-screen menu cannot be switched off by pressing ON SCREEN ON/OFF when on-screen pages 3 to 6 are displayed. To deactivate the menu, return to on-screen page 1 or 2 (time/date display) and then press ON SCREEN ON/OFF.
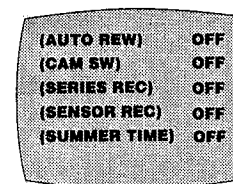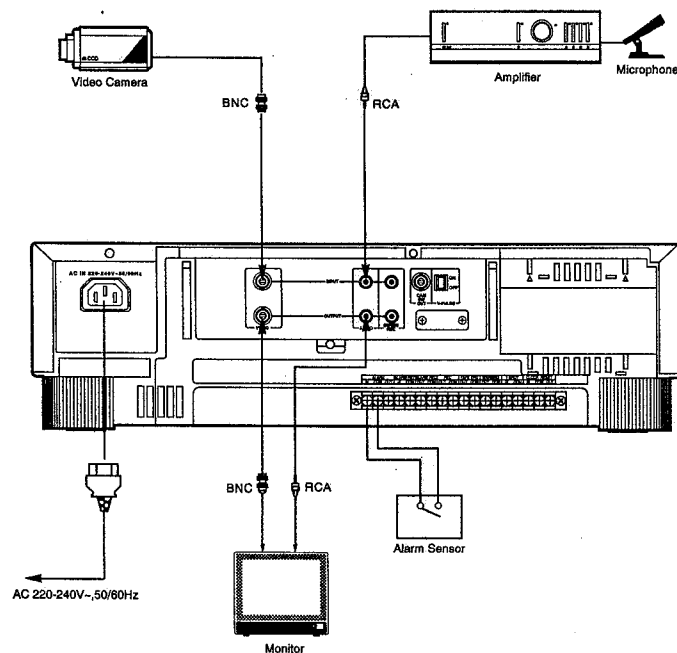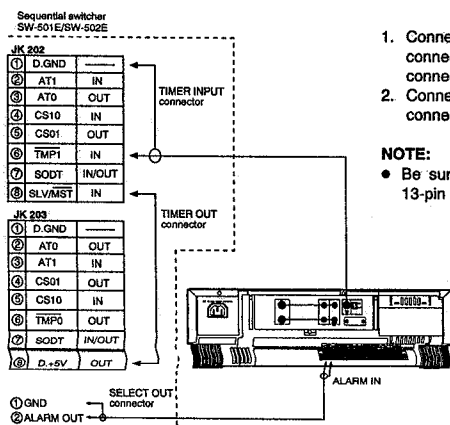

On-screen page 6

● The setup menu is backed up by backup batteries in the event of a power failure. If the batteries fail, "SU 0:00" will blink on the VCR's display and the setup menu will be reset to the factory preset settings. In this case, change batteries and set the menu again.

CONNECTIONS

CONNECTING TO A SINGLE CAMERA WITH A BUILT-IN SSG

Video Camera

Amplifier   Microphone

BNC   RCA

BNC   RCA

Alarm Sensor

AC 220-240V~,50/60Hz

Monitor

CONNECTION TO THE SW-501E/SW-502E SEQUENTIAL SWITCHER

Sequential switcher
SW-501E/SW-502E

JK 202

① D.GND	—
② AT1	IN
③ AT0	OUT
④ CS10	IN
⑤ CS01	OUT
⑥ TMP1	IN
⑦ SODT	IN/OUT
⑧ SLV/MST	IN

TIMER INPUT connector

JK 203

① D.GND	—
② AT0	OUT
③ AT1	IN
④ CS01	OUT
⑤ CS10	IN
⑥ TMP0	OUT
⑦ SODT	IN/OUT
⑧ D.+5V	OUT

TIMER OUT connector

①GND
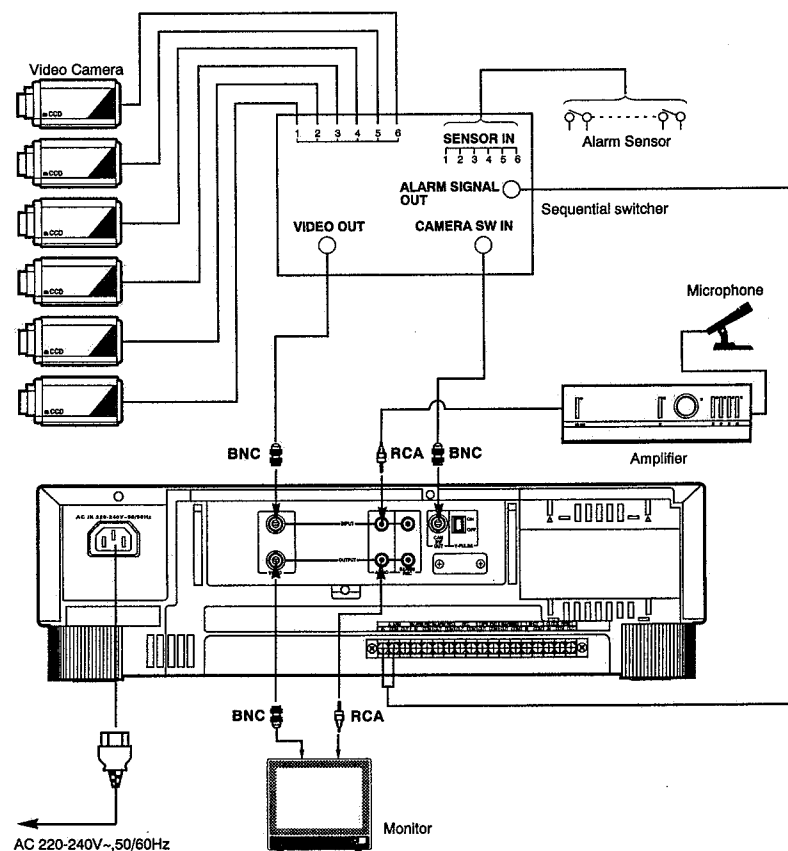②ALARM OUT

SELECT OUT connector

ALARM IN

1. Connect pin 6 of the sequential switcher's TIMER INPUT connector to the VCR's CAMERA SW OUT terminal while connecting pin 1 to the GND terminal.
2. Connect pin 8 of the sequential switcher's TIMER INPUT connector to pin 8 of its TIMER OUT connector.

NOTE:
- Be sure to use 8-pin DIN connector, BNC connector, and 13-pin connector for connections.

CONNECTION TO SEVERAL CAMERAS VIA A SEQUENTIAL SWITCHER

Video Camera

SENSOR IN   Alarm Sensor

ALARM SIGNAL OUT

VIDEO OUT   CAMERA SW IN   Sequential switcher

Microphone

BNC   RCA   BNC   Amplifier

BNC   RCA

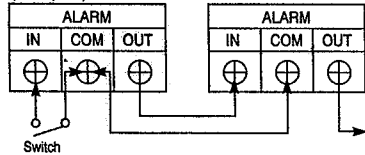AC 220-240V~,50/60Hz   Monitor

NOTES:
- Camera signals can be monitored even if the recorder's power is off.
- When connecting to the SW-C300E or SW-501E/SW-502E, set the timelapse mode to 24 hours or longer.
- When connecting to a sequential switcher with an alarm input terminal, set the On-Screen Setup Menu item "ALARM TIME" to "MANUAL". Alarm time setting is done by the sequential switcher.
- Synchro should be applied to all connected video cameras.

16   17
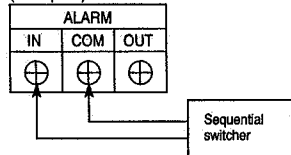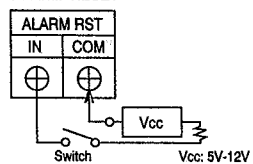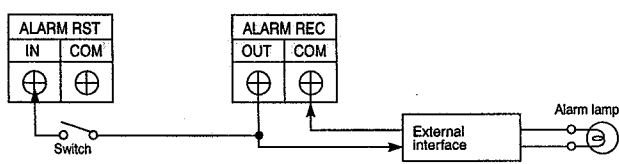
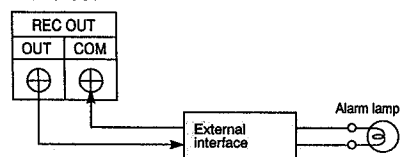## INPUT/OUTPUT TERMINAL CONNECTIONS

ALARM IN/OUT

(Example 1) 1st VCR

ALARM		
IN	COM	OUT

2nd VCR

ALARM		
IN	COM	OUT

Switch

(Example 2)

ALARM		
IN	COM	OUT

Sequential switcher

ALARM RESET

ALARM RST	
IN	COM

Switch   Vcc   Vcc: 5V-12V

ALARM RST	
IN	COM

Switch

ALARM REC

ALARM REC	
OUT	COM

External interface   Alarm lamp

REC OUT

REC OUT	
OUT	COM

External interface   Alarm lamp

TAPE END

TAPE END	
OUT	COM

External interface   Alarm lamp

WARNING

WARNING	
OUT	COM

External interface   Alarm lamp

1 SHOT

1 SHOT	
IN	COM

Switch
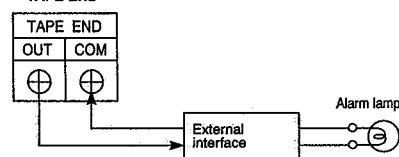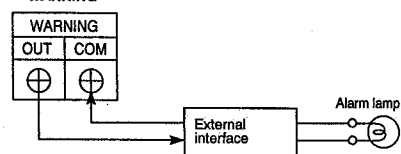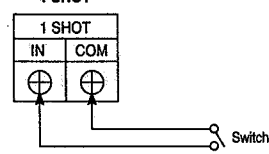
CLOCK RESET

● When adjusting the clock to 1st VCR's clock

1st VCR

CLOCK RESET		
IN	COM	OUT

2nd VCR

CLOCK RESET		
IN	COM	OUT

Last VCR

CLOCK RESET		
IN	COM	OUT
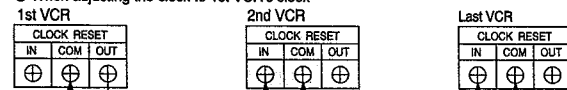
● When adjusting the clock to external master clock

External master clock

1st VCR

CLOCK RESET		
IN	COM	OUT

2nd VCR

CLOCK RESET		
IN	COM	OUT

Last VCR

CLOCK RESET		
IN	COM	OUT

External Interface
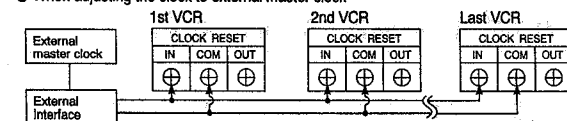
External Interface example

Example: A lamp lights with HIGH signal

(Such as an alarm lamp)

Power source

Control signal

GND

Relay
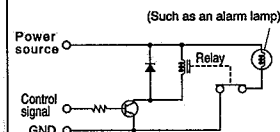
● Use appropriately rated devices.

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CLOCK SETTING

Time/date generation and timer operation are not possible if the clock has not been set.
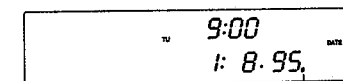
SUMMER TIME COMPENSATION

The setting of the "SUMMER TIME" menu switch on on-screen menu page 6 determines whether or not the summer time mode is engaged.

When the "SUMMER TIME" switch is set to ON, the currently set time advances one hour and "S" lights on the counter display.

(AUTO REW)	OFF
(CAM SW)	OFF
(SERIES REC)	OFF
(SENSOR REC)	OFF
(SUMMER TIME)	ON
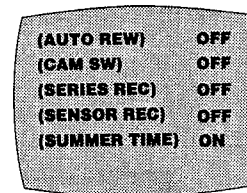
On-screen page 6

- When setting the time, make sure the "SUMMER TIME" switch is set to OFF.
  When the unit is shipped, this switch is set to OFF.
- Clock setting is not possible during timer recording.

9:00
1: 8. 95.

"S" indicator

During Daylight Savings Time

1. Set the time with one-hour delay.
2. After setting the time, set the "SUMMER TIME" switch to ON.
   - The set time advances one hour. "S" lights on the counter display.
3. At the end of the Daylight Savings Time season, set the "SUMMER TIME" switch to OFF.
   - "S" will not appear on the display when the standard time instead of "Summer Time" is displayed.

Standard Time

1. Set the clock to the actual time.
2. When Daylight Savings starts, set the "SUMMER TIME" menu switch to ON.
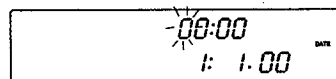   - The time advances one hour and "S" lights on the counter display.

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CLOCK SETTING PROCEDURE

PRG/CLK button

SET buttons   SHIFT buttons
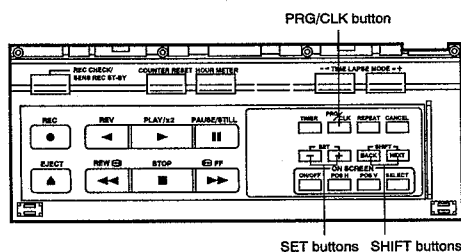
1. Press PRG/CLK until the Clock Set mode is engaged.
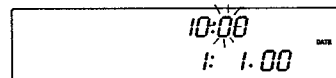   - The hour indication will blink.

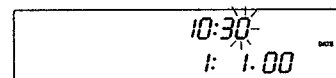   Perform the next operation within 10 seconds of pressing the PRG/CLK button.

2. Enter the hour with either SET button, and press SHIFT NEXT.
   - To enter one digit only, press SHIFT NEXT, then set the number.

     As soon as the SET or SHIFT buttons are pressed, the seconds will be reset to "00". Seconds are shown on screen.
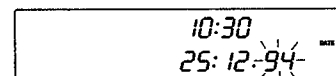
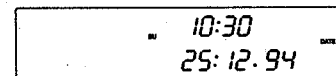3. Enter the minutes with either SET button, and press SHIFT NEXT.

4. Enter the day, month, and year in the same way.
   - In year setting, set only the last two digits of the year.
   - If you make a mistake, press SHIFT NEXT or SHIFT BACK to return to the item.

5. Press PRG/CLK to end clock setting.
   - Time-keeping starts. Counting starts from "00" seconds.
   - The day-of-the-week indication is automatically displayed.

NOTE:
- For February 29, set the date in the order of year, month and day.

```
-00:00
   1: 1.00      DATE

  10:00
   1: 1.00      DATE

  10:30-
   1: 1.00      DATE

  10:30
  25: 12-94-    DATE

su  10:30
  25: 12. 94    DATE
```
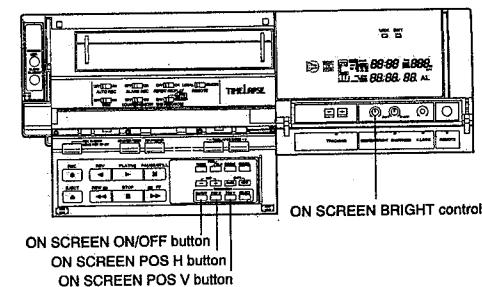

Power failure indicator
- A blinking "SU 0:00" indicates that the backup batteries have been discharged. Replace the batteries and set the clock and Setup menu again.

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TIME/DATE GENERATOR

The built-in time/date generator allows you to superimpose the time and date on the video image and record it.

- Make sure the recorder's clock is set correctly. ☞ p.20.

ON SCREEN BRIGHT control
ON SCREEN ON/OFF button
ON SCREEN POS H button
ON SCREEN POS V button

1. Turn on the VCR and monitor.
   - Time/date display appears on the screen. If nothing is displayed, press ON SCREEN ON/OFF.
2. Press ON SCREEN POS H and POS V to move the cursor to the position where you want the superimposed characters to appear.
   - Pressing POS H moves the cursor to the right in 19 steps. Pressing the button again when the cursor is on the left of the screen will return it to the left.
   - Pressing POS V moves the cursor down the screen in 17 steps. Pressing the button again when the cursor is at the bottom of the screen will return it to the top.
3. Adjust the brightness of the time/date display with the ON SCREEN BRIGHT control.
   - Turn clockwise to increase brightness or counterclockwise to decrease it.
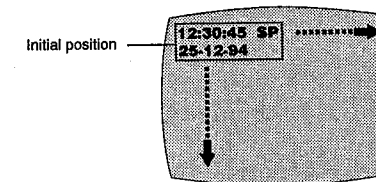
NOTES:
- The clock must be reset after the recorder has been unplugged for a long period of time.
- Because the clock may gain or lose up to 60 sec. a month due to environmental variations such as temperature fluctuations, we recommend that the clock be adjusted on a regular basis.

Initial position
```
12:30:45 SP
25-12-94
```

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HANDLING VIDEO CASSETTES

LOADING

1. Insert a cassette with its label side facing you.
   - The power will come on automatically.
   - If the safety tab has been removed, playback will start automatically.
   - For best results, use only JVC video cassettes with recording times less 180 minutes (E-180).
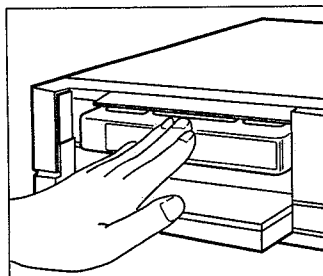
UNLOADING

1. Press EJECT.
   - Even when the power is off, simply press the EJECT button to unload a cassette.
   - If the cassette will not eject, check to see if "TIMER" is displayed on the display panel. If it is, press the TIMER button to turn off the Timer Standby mode.

WARNING
- Do not insert fingers or foreign objects into the cassette loading slot as this may result in personal injury or damage to the mechanism.
- Do not try to remove the cassette once automatic loading has started.

ACCIDENTAL ERASURE PREVENTION

- To prevent accidental recording on a recorded cassette, remove its safety tab.
- To record on it later, cover the hole with adhesive tape.
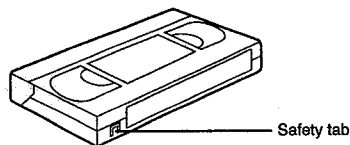
Safety tab

RECORDING

BASIC PROCEDURE

- Connect necessary components correctly. ☞ p.16.
- Set the VHS VIDEO MODE switch as required.
1. Load a cassette with safety tab in place.
2. Press TIMELAPSE MODE +/– to select the recording mode.
   - The recording mode will appear on the FDP.
3. Press REC to start recording.
   - To verify picture quality during recording, press REC CHECK. The tape will play back the last recorded segment in reverse, then resume recording.
4. To temporarily stop recording, press PAUSE/STILL.
   - The recorder will enter the Record-Pause mode. If the recorder remains in this mode for more than 5 min. (approx.), it will automatically enter the Stop mode.
5. To re-start recording, press PLAY/X2.
6. To end recording, press STOP.

REC CHECK button   PAUSE/STILL button

TIMELAPSE MODE buttons

STOP button

REC button   PLAY/X2 button
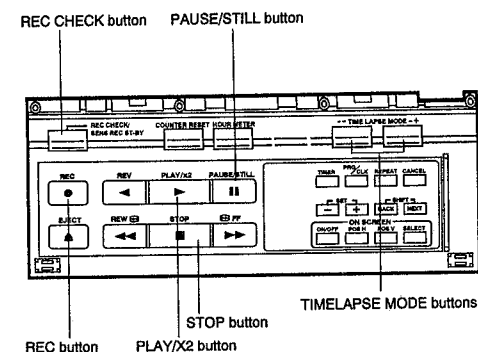
Repeat Recording
Set the REPEAT REC/PLAY switch to ON. The recorder will automatically rewind the tape at tape end (regardless of the setting of the On-Screen Setup Menu item "AUTO REW"), and start recording again from the beginning.

Automatic Start of Recording After Power Failure
Set the AUTO REC switch to ON. If a power failure occurs during recording, recording will re-start automatically when power is restored. The recording mode will be the same as when power was lost.

NOTES:
- If repeat recording is used, any previously recorded alarm recording will be erased and replaced by the new recording.
- During repeat recording, counter memory and VISS index search (alarm search) are ignored.
- Keep in mind that when the AUTO REC switch is left set to ON, the VCR will automatically enter the Record mode when the power is turned on.

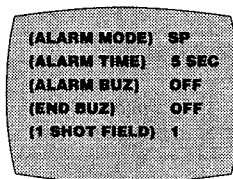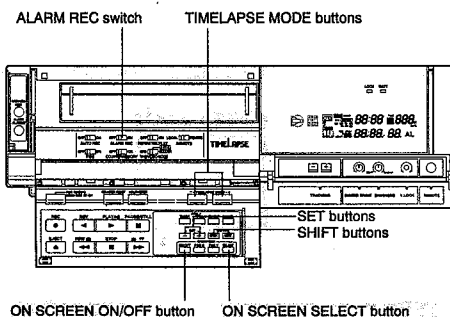AUTO REC switch

REPEAT REC/PLAY switch
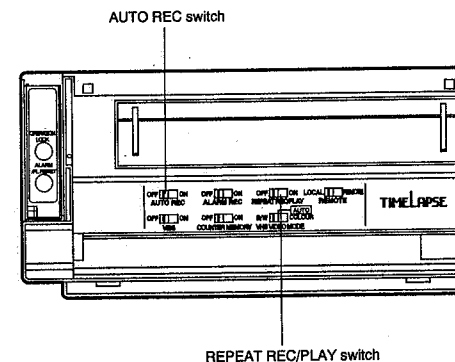
ALARM RECORDING

Alarm recording allows the recorder to automatically switch to the pre-selected 3-hour (SP) or 6-hour (LP) continuous recording mode when an alarm signal is received via the rear panel ALARM IN/COM terminals. Recording will continue for the pre-selected duration.
- Connect necessary components correctly. ☞ p.16~18

1. Press ON SCREEN ON/OFF or ON SCREEN SELECT to activate the on-screen display.
2. Press ON SCREEN SELECT to call up on-screen page 5.
3. Press SHIFT BACK/NEXT to select "ALARM MODE".
4. Press SET +/– to set SP or LP.
   - Alarm recording will take place in the selected mode.
5. Press SHIFT BACK/NEXT to select "ALARM TIME".
6. Press SET +/– to set the alarm recording duration.
   - Selectable from 8 settings. If set to "TAPE E", alarm recording continues until the end of the tape is reached. If set to "MANUAL", alarm recording continues as long as the alarm signal is being input. Use this position if you use a type of alarm sensor which outputs pulses continuously until it resets to normal.
   - When alarm time is set to "MANUAL", index codes will not be properly recorded on alarm recordings of less than 30 seconds.
7. Press SHIFT BACK/NEXT to select "ALARM BUZ".
8. Press SET +/– to set on ON or OFF.
   - If set to ON, the built-in electronic buzzer signals the start of alarm recording.
9. To cancel the on-screen display, press ON SCREEN SELECT to return to page 1 or 2 (time/date display), then press ON SCREEN ON/OFF.
10. Set the ALARM REC switch to ON.
11. Press TIMELAPSE MODE +/– to select the recording mode.
12. Press REC to start recording.

ALARM REC switch   TIMELAPSE MODE buttons

ON SCREEN ON/OFF button   ON SCREEN SELECT button

SET buttons
SHIFT buttons

(ALARM MODE) SP
(ALARM TIME) 5 SEC
(ALARM BUZ) OFF
(END BUZ) OFF
(1 SHOT FIELD) 1

On-screen page 5

Display	"ALARM" on the screen	OFF	ON	OFF	ON	OFF	
	"AL" on the display panel	OFF	ON	BLINK	ON	BLINK	
Recording mode		Timelapse recording	SP or LP	Timelapse recording	SP or LP	Timelapse recording	

Alarm recording takes place.   Alarm recording takes place.

Alarm signal enters   Alarm signal enters

NOTES:
- An index code is recorded when the recorder switches from Timelapse to Alarm Recording.
- Alarm recording is not possible in the one-shot recording mode.
- If alarm recording is engaged in timer recording, alarm recording will stop at the preset timer-stop time.
- Alarm recording functions regardless of the setting of on-screen page 6 "SENSOR REC".
- There may be some picture distortion at the start- or end-point of an alarm recording. This is not a malfunction.

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SENSOR RECORDING

With sensor recording, the recorder automatically starts recording only when an alarm signal is received (while in the Stop mode). Recording will continue for the pre-selected duration. Sensor recording will take place even in the Timer Standby mode.
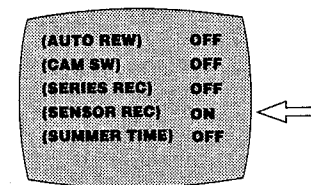- Connect necessary components correctly. (☞ p. 16~18)

After step 8 of "ALARM RECORDING" (☞ p. 24).
9. Press ON SCREEN SELECT to call up on-screen page 6.
10. Press SHIFT BACK NEXT to select "SENSOR REC".
11. Press SET +/- set to on.
12. To cancel the on-screen display, press ON SCREEN SELECT to return to page 1 or 2 (time/date display), then press ON SCREEN ON/OFF.
13. Press SENS REC ST-BY.
   - The recorder enters the Sensor recording standby mode.
   - Recording will start automatically when an alarm signal is input and end after the pre-selected duration (☞ p. 24). The VCR will then return to the Sensor recording standby mode.
14. To stop sensor recording or cancel the alarm display, press ALARM/PL RESET. To cancel sensor recording, set "SENSOR REC" on on-screen page 6 to "OFF".

NOTES:
- Sensor recording can also be entered from the Stop mode without engaging the Sensor recording standby mode. In this case, recording will take more than 5 seconds to start.
- Sensor recording can also be engaged when the power is off. However, the VCR will not switch off after sensor recording is finished; instead it will enter the recording standby mode.
- There may be some picture distortion between takes in sensor recording. This is not a malfunction.
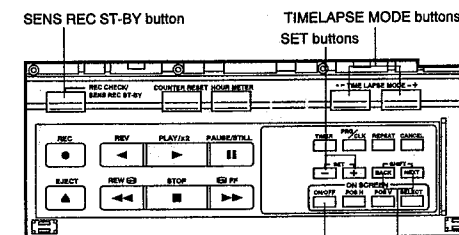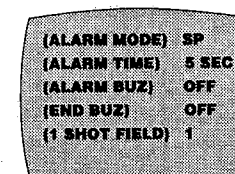
ONE-SHOT FIELD RECORDING

In normal timelapse recording one field is recorded at a time. One-shot field recording gives you greater flexibility by allowing you to choose how many fields are to be recorded at one time.
1. Press ON SCREEN ON/OFF or ON SCREEN SELECT to activate the on-screen display.
2. Press ON SCREEN SELECT to call up on-screen page 5.
3. Press SHIFT BACK/NEXT to select "1 SHOT FIELD".
4. Press SET +/- to set number of fields to be recorded.
   - Selectable from 1, 2, 5, and 10 fields. The recording interval is 0.32 seconds (corresponds to 48-hour mode).
5. To cancel the on-screen display, press ON SCREEN SELECT to return to page 1 or 2 (time/date display), then press ON SCREEN ON/OFF.
6. Set the recording time to "000H" with TIMELAPSE MODE +/- buttons and press REC.
   - The recorder enters the Record-Pause mode.
7. To start one-shot field recording, press PAUSE.
   - The designated number of fields are recorded and the recorder enters the Record-Pause mode.
   - You can also start one-shot recording by connecting an external switch to the 1 SHOT IN/COM terminals on the rear panel.
8. To cancel one-shot recording, press STOP or set to a recording time other than "000H". If the Record-Pause mode continues for more than 3 minutes, the recorder automatically restarts the current one-shot recording.

(AUTO REW) OFF
(CAM SW) OFF
(SERIES REC) OFF
(SENSOR REC) ON
(SUMMER TIME) OFF

On-screen page 6

SENS REC ST-BY button   TIMELAPSE MODE buttons
SET buttons

SHIFT buttons
ON SCREEN ON/OFF button

(ALARM MODE) SP
(ALARM TIME) 5 SEC
(ALARM BUZ) OFF
(END BUZ) OFF
(1 SHOT FIELD) 1

On-screen page 5

NOTE:
- During playback in the SP mode, there may be colour loss in those sections of the tape recorded in the one-shot field recording mode.

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SERIES RECORDING

By connecting several BR-9020Es in series you can obtain in-depth coverage over a long period of time.

1. Engage the On-Screen Setup Menu and set SERIES REC to "ON" for all connected recorders. ☞ p.15
   To cancel the on-screen display, press ON SCREEN SELECT to return to page 1 or 2 (time/day display), then press ON SCREEN ON/OFF.
2. Load cassettes with safety tab in place in all connected recorders.
3. Set all recorders (except A) in the Stop mode with power turned on.
4. Operate Recorder A for recording.
   When Recorder A reaches tape end, it will transmit a series control command to Recorder B. Recorder B will start recording.
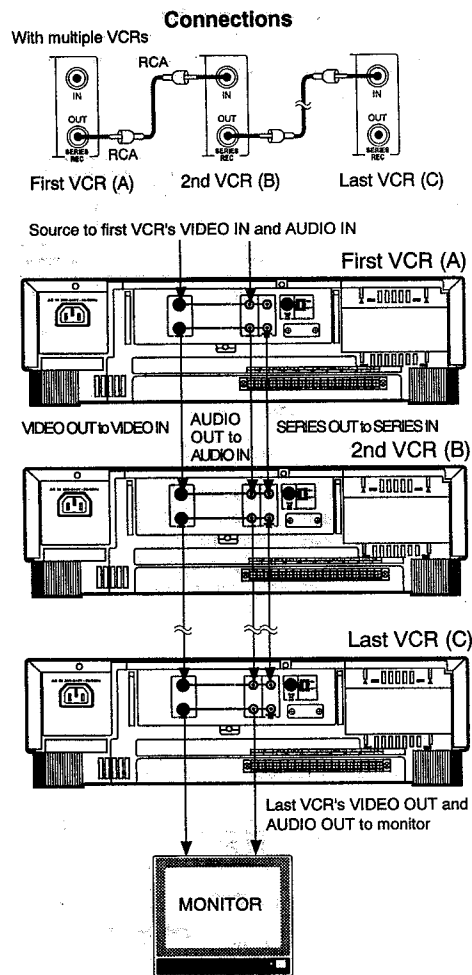
NOTES:
● A series control command can be accepted while the recorder is in the Rewind mode. In this case, recording will start once rewind is completed.
● Do not put Recorder B (and subsequent ones) in the Play, Still, Record, or Record-Pause mode.
● Series operation will stop if the series control command is delivered to an unloaded VCR or one in which the loaded cassette's safety tab has been removed. Be sure that cassettes are loaded in all connected VCRs.
● Series operation can be cancelled at any time by pressing the currently-operating VCR's STOP button.

Connections

With multiple VCRs

First VCR (A)   2nd VCR (B)   Last VCR (C)

Source to first VCR's VIDEO IN and AUDIO IN

First VCR (A)

VIDEO OUT to VIDEO IN | AUDIO OUT to AUDIO IN | SERIES OUT to SERIES IN

2nd VCR (B)

Last VCR (C)

Last VCR's VIDEO OUT and AUDIO OUT to monitor

MONITOR

(Be sure to terminate the signals at the monitor with a 75-ohm terminating connector.)

INSTANT TIMER RECORDING (OFF-TIMER)

You can set the VCR to automatically stop recording and shut off after a specified timespan.

1. Press REC while in the Record mode to activate the off-timer.
   ● "REC STOP" lights on the display panel. Recording duration is set at "0:30" (30 minutes).
   ● The off-time can be delayed in 30-minute increments (up to 9 hours) by pressing REC.
   ● Each time the REC button is pressed, the recording time changes from 0:30 → 1:00 → 1:30 → 2:00 ..... 9:00 → Normal recording → 0:30 .....
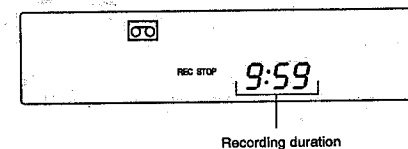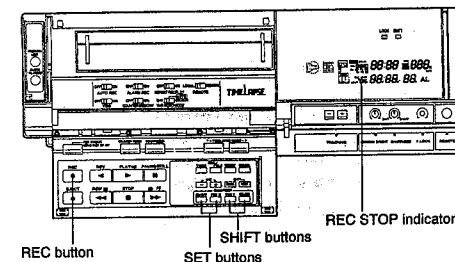
Off-Time Setting in 1-Minute Increments
Once the off-timer has been activated, the off-time can be set more precisely (up to 9 hours, 59 minutes). Incremental setting is not possible with the On-Screen Setup Menu activated.
After step 1:

2. Press SHIFT NEXT or BACK.
3. Press SET to set the hour, and press SHIFT NEXT.
4. Press SET to set the minute, and press SHIFT NEXT.
   ● Make entries within 4 seconds at each step.
5. When the duration is set, press REC within 4 seconds.
   ● The digits will stop blinking.
   ● If more than 4 seconds passes before REC is pressed, the duration is restored to its previous setting.
6. Displayed time counts down while recording is in progress. When 0:00 is reached, the Record mode is released and the power is automatically turned off.
   ● If the end of the tape is reached during recording with the REPEAT REC/PLAY switch set to OFF, the cassette is ejected and power turned off.

NOTES:
● Instant timer recording has priority over programmable timer recording. Be sure that the preset times do not overlap.
● Instant timer recording is inoperative during sensor recording or when the clock/date has not been set.

REC STOP indicator

REC button   SHIFT buttons
                  SET buttons

REC STOP *9:59*

Recording duration

PROGRAMMABLE TIMER RECORDING

Unattended start and stop of recording is possible using the 14-day/8-event programmable timer.

● For timer programming procedures, ☞ p.29.
● Make necessary preparations for connected components.

1. Load a cassette with safety tab in place.
2. Program the timer with the SET and SHIFT buttons. ☞ p.29.
3. Press the TIMER button to enter the Timer Standby mode.
   ● "TIMER" and program number(s) appear on the display panel.
   ● Recording will start at the preset time, and stop at the preset time.
   ● If the end of the tape is reached during recording with the REPEAT REC/PLAY switch set to OFF, the cassette is ejected and "⊙⊙" indicator blinks.

NOTE:
● If you need to use the VCR while it is in the Timer Standby mode, press TIMER and then POWER. After using the VCR, be sure to press TIMER to engage the Timer Standby mode.
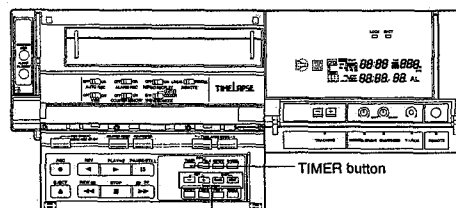
TIMER button

Timer programming buttons
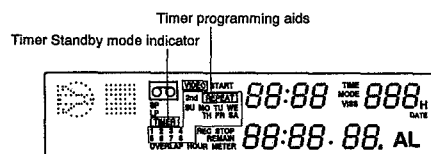
Timer programming aids
Timer Standby mode indicator

EXTERNAL TIMER RECORDING

Timer recording is possible when an external timer unit is connected.
● Connect necessary components correctly.

1. Load a cassette with safety tab in place.
2. Set recording mode as required.
3. Set the AUTO REC switch to ON.
   ● Recording will start when power is supplied from the timer unit at the preset time.

NOTE:
● This function is inoperative if the VCR is in the Timer Standby mode.

AUTO REC switch
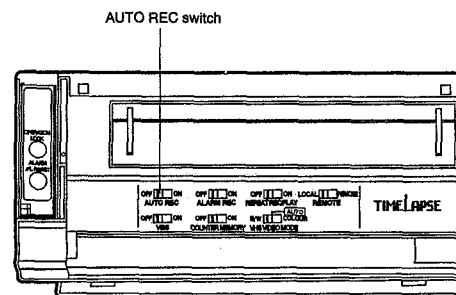
TIMER PROGRAMMING

This section describes timer programming procedure only. To activate timer recording, ☞ p.28.

PROCEDURE

● If time and date have not been set, the Timer Setting mode cannot be engaged. Set the time and date first, then set the timer. ☞ p.19
● Turn on the VCR
1. Press PRG/CLK to engage the Timer Set mode.
   ● Program 1 will blink on the FDP.
   ● To advance to another program, select a program number with SET +/−.
   ● Data can also be displayed on-screen. When SET + is pressed with program 8 displayed, the display panel returns to clock display.

2. Press SHIFT NEXT.
   "SU" will blink on the FDP.
3. Enter the day with SET +/−.
   ● The day of the week changes from 1st week to 2nd week. (eg. "SU", "MO",..."2nd SA", "2nd SU")
   ● For weekly setting, press REPEAT. "REPEAT" will appear above the day.
   ● For daily setting, press SET +/− until the desired option appears. ("SU"..."SA", "MO"..."SA", "MO"..."FR")
4. Press SHIFT NEXT to advance to the next step.
5. Enter the start time with SET +/− and SHIFT NEXT.
6. Enter the stop time with SET +/− and SHIFT NEXT.
7. Select the recording mode with TIMELAPSE MODE +/−.
8. Press PRG/CLK to end programming.
   ● The display panel changes to the clock display.
9. Press TIMER to engage the Timer Standby mode.
   ● The power is automatically turned off and the Timer Standby mode is engaged.
   ● "TIMER" and the program number(s) appear on the display panel.
   ● To immediately engage the Timer Standby mode, press TIMER.
   ● Before engaging the Timer Standby mode, make sure that the timelapse recording mode is set as required.

NOTES:
● "1st week" and "2nd week" do not refer to calendar weeks. The 1st week refers to the seven-day period beginning with the present day and the 2nd week refers to the subsequent seven-day period. These two weeks are counted from the time of setting.
● If the "OVERLAP" indication appears on the FDP when the TIMER button is pressed, it means that the start and stop times of two or more programs overlap. Check the timer data and correct as necessary. If overlapping programs are not corrected, the second program will not start until the first one is completed.
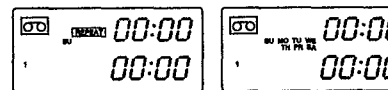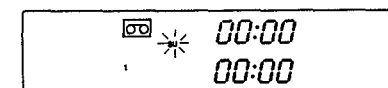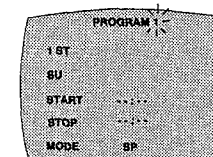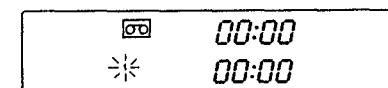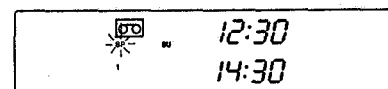
Weekly setting   Daily setting
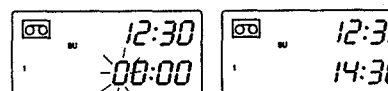
Blinking item is ready to be set.

OVERLAP indicator

Checking timer data

1. Press PRG/CLK in the Timer Standby mode or Timer-Record mode.
   - Timer data for the program with the earliest start-time appears on the display panel, followed by the program with next-earliest start-time and so on. Display time is about 5 seconds for each set of program data.
   - To advance the data display manually, press SET.
2. Check the data.
   - To return to the Clock mode, press PRG/CLK. The Clock mode is returned to automatically if no action is taken for 60 seconds.

NOTE:
- Timer data is not displayed on screen.

Cancelling timer data

- Cancel the Timer Standby mode.
1. Press PRG/CLK.
   - Timer data for program 1 appears on the display panel.
2. Press SET to select the program you wish to cancel.
3. Press CANCEL.
   - Programmed data is cleared from memory.
4. Press PRG/CLK.
   - The display panel changes to the clock display.

Correcting timer data

1. Press PRG/CLK
   - Timer data for program 1 appears on the display panel.
2. Press SET+/-to select the program number you wish to correct.
3. Press SHIFT NEXT or BACK to move to the item to be corrected and enter new data with SET.
4. Press PRG/CLK.

To use the recorder while in the Timer Standby mode

1. Press TIMER to cancel Timer Standby mode. The "TIMER" indicator goes off.
2. Press POWER to turn the power on.
   - The recorder can be used.
   - Press TIMER to return to the Timer Standby mode. The "TIMER" indicator will light.

Program Cancel mode

When you've set the timer for weekly or daily repeat recording, you may wish to cancel recording on specified days falling within the preset period. With the Program Cancel function, you can set the timer not to record on up to 14 specified days during the year.

1. Press CANCEL, then press PRG/CLK within 5 seconds.
   - The following display appears on-screen with day digits blinking.
   - The display panel also changes to the Program Cancel mode.
2. Set the date(s) where recording is not to take place with the SET and SHIFT buttons.
   - To cancel a preset date, press either SHIFT button until the relevant digits are blinking and press CANCEL.
3. Press PRG/CLK to return to the normal display mode.

NOTES:
- Program Cancel data (day and month) will remain even after the year changes.
- Year setting is not possible.
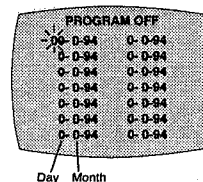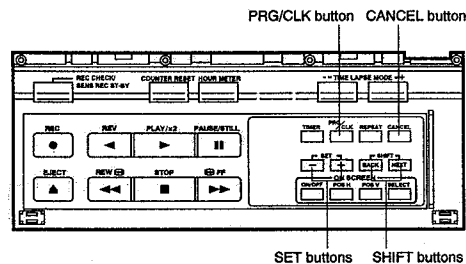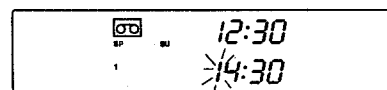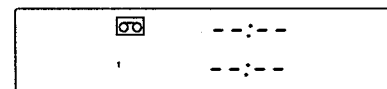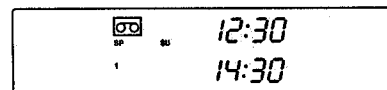
BASIC PROCEDURE

1. Load a cassette.
   - If the safety tab on the cassette is removed, playback starts automatically.
2. Press TIMELAPSE MODE +/- to select the appropriate playback mode.
3. Press PLAY/X2 to start playback.
   - Adjust the picture as required with the SHARPNESS control.
4. Press STOP to stop playback.

NOTES:
- The recorder is preset to automatically stop when the end of the tape is reached. If you want the recorder to rewind at tape end, set "AUTO REW" to "ON" via On-Screen Setup Menu page 6. ☞ p.15.
- If the REPEAT REC/PLAY switch is set to ON, playback will start again automatically from the beginning.

DOUBLE-SPEED PLAYBACK

- Press PLAY/X2 while in the SP or LP mode to engage the Double-Speed mode.
- Press PLAY/X2 to return to the original playback mode.
- In timelapse playback, pressing PLAY/X2 engages the SP mode. Press again for Double-Speed playback.
  Timelapse Play → SP → Double-Speed Play → Timelapse Play ...

REVERSE PLAYBACK

- Press REV while in the Play mode for reverse playback at normal speed.
- Press PLAY/X2 to return to the original playback mode.

REWIND AND FAST-FORWARD

- Press REW or FF while in the Stop mode.
- Press STOP to stop rewind or fast-forward.
- If the COUNTER MEMORY switch is set to ON, the tape will stop at counter reading zero.

STILL AND FIELD ADVANCE

- Press PAUSE/STILL while in the Play mode to view a still picture.
- Press PAUSE/STILL while in the Still mode to advance the picture field by field (SP mode only).
- Press PLAY/X2 to return to the original playback mode.

NOTES:
- To protect the tape, the Still mode is automatically cancelled after about 5 minutes.
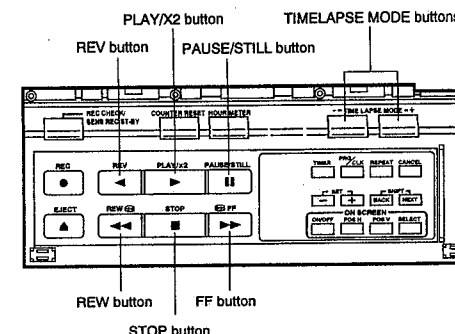
SHUTTLE SEARCH

- Press REW while in the Play mode for high-speed reverse search at 9 times normal speed.
- Press FF while in the Play mode for high-speed forward search at 9 times normal speed.
- Press PLAY/X2 to return to the original playback mode.
- For brief searching, hold REW or FF depressed; releasing the button returns to the original playback mode.

VISS INDEX SEARCH (ALARM SEARCH)

This function gives you quick access to the nearest index code in either direction. The recorder automatically marks index codes at the beginning of each recording initiated from the Stop or Timer Standby mode, as well as at the beginning of each alarm recording. You'll be able to access alarm recordings automatically when playing back tapes recorded with the ALARM REC switch set to ON.

1. Set the VISS switch to "ON".
2. Press FF or REW in the Play, Still, or Stop mode.
   - VISS Index Search/Alarm Search will start in the corresponding direction. The "VISS" indication on the FDP will light.
   - If Index Search/Alarm Search was started from the Play or Still mode, the screen will show search pictures and playback will start automatically when the index code is located.
   - If Index Search/Alarm Search was started from the Stop mode, then the index code is detected in the Rewind or Fast-Forward mode. The tape stops when the index code is located.
3. To cancel VISS Index Search/Alarm Search, press STOP.

TRACKING CONTROL

- To minimise noise bars that may appear on-screen during normal or double-speed playback, press either TRACKING button until the best possible picture is obtained.
- To reset tracking to normal, press both TRACKING buttons simultaneously.
- To adjust tracking during still playback, press PAUSE/STILL a few more times to minimise noise bars.
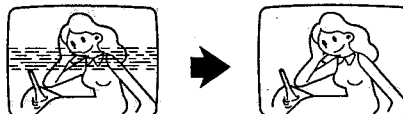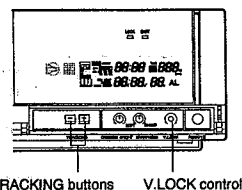
V. LOCK ADJUSTMENT

Vertical jitter in still or timelapse playback pictures can be corrected with the V. LOCK control.
- Turn in either direction to minimise jitter.
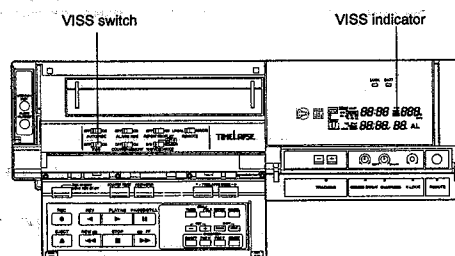
32

VISS switch   VISS indicator

NOTE:
- This function will not operate during rewind in Auto Rewind mode and Repeat Recording/Playback mode.

TRACKING buttons   V.LOCK control

NEXT-FUNCTION MEMORY

You can specify the mode you want to enter after rewind (Play, Timer Standby, Eject or Power Off) immediately after pressing the REW button.
If the VISS switch is set to ON, next-function memory operation takes place at the index point rather than tape-begin.

1. Press REW while in the Stop mode.
2. Press the corresponding button (PLAY/X2, TIMER, EJECT, or POWER) within 2 seconds.
   - At completion of rewind, the selected mode is entered automatically.
   - During rewind, the corresponding indicator (PLAY, TIMER, "Cassette loaded" indicator, or POWER button's LED) blinks.
   - To cancel the memory during rewind, press STOP for Play Memory, STOP, PLAY/X2, FF, or REW for Eject Memory, TIMER or POWER for Timer Standby Memory, or POWER for Power Off Memory.

NOTE:
- When the next-function memory is operating, the counter memory function is inoperative.
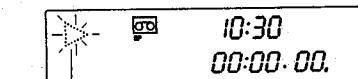
Blinks during rewind
(for Play memory).

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TROUBLESHOOTING GUIDE

POWER AND TAPE TRANSPORT PROBLEMS

Symptoms	Check points
Clock is functioning normally, but the VCR power cannot be turned on.	● Is "TIMER" displayed on the display panel? — Press the TIMER button to cancel the Timer-Standby mode.

RECORDING PROBLEMS

Symptoms	Check points
Recording will not start.	● Is the cassette loaded? ● Has the cassette's safety tab been removed? — Reseal the slot with adhesive tape.
Timer recording is not possible.	● Have you set the clock and programmed the timer correctly? — Check again. ● Is "TIMER" displayed on the display panel? — If not, press the TIMER button to display "TIMER".

PLAYBACK PROBLEMS

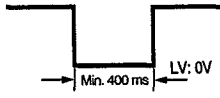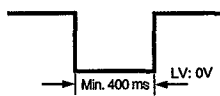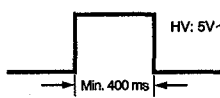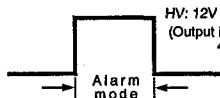| Symptoms	Check points
Tape is running but there is no playback picture.	● Is the monitor's input select switch set correctly? ● If you are using a TV receiver via AV connection, is it set to the "AV" mode? — If not, set it to the "AV" mode.
Noise and jitter problems.	● Refer to "TRACKING CONTROL" and "V. LOCK ADJUSTMENT" ☞ p.32.

OTHERS
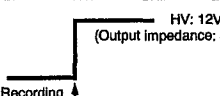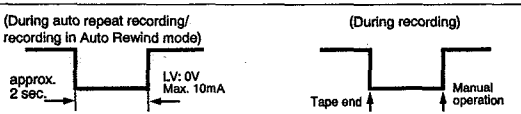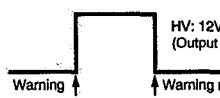
Symptoms	Check points
Timer setting is not possible.	● Has the clock been set? — Set the clock.
VISS Index Search does not function.	● Is the VISS switch set to ON? — Set to ON.

ERROR INDICATION

When a malfunction occurs in the tape mechanism during loading or unloading, the power is automatically turned off and "ERR" appears on the display panel. (☞ p.13 "FLUORESCENT DISPLAY PANEL")
● The VCR will return to normal operation when the power is turned on again.
● If the "ERR" indication remains lit after the power is turned on again, it may indicate other malfunctions. In this case, consult your local JVC service agent.
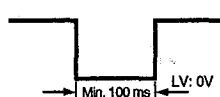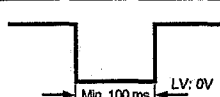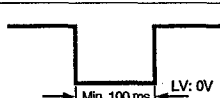
INPUT/OUTPUT TERMINAL SIGNAL LEVELS

Terminal	Signal level	Remark
ALARM IN	LV: 0V — Min. 400 ms	Input at ground level
ALARM OUT	LV: 0V — Min. 400 ms	Through out of input signal
ALARM RST IN	HV: 5V~12V — Min. 400 ms	Input at high level
ALARM REC OUT	HV: 12V (Output impedance: 4700 ohms) — Alarm mode	Output at high level
REC OUT	HV: 12V (Output impedance: 4700 ohms) — Recording	Output at high level
TAPE END OUT	(During auto repeat recording/recording in Auto Rewind mode) approx. 2 sec. LV: 0V Max. 10mA / (During recording) Tape end — Manual operation	Output at ground level
WARNING OUT	HV: 12V (Output impedance: 4700 ohms) — Warning / Warning reset	Output at high level
1 SHOT REC IN	LV: 0V — Min. 100 ms	Input at ground level
CLOCK RESET IN	LV: 0V — Min. 100 ms	Input at ground level
CLOCK RESET OUT	LV: 0V — Min. 100 ms	Output at ground level

CAMERA SWITCHING SIGNAL OUTPUT

The CAM SW OUT terminal on the rear panel outputs a switching timing signal to the connected sequential switcher. Switching interval can be set with on-screen setup menu page 6 "CAM SW"(☞ p.15).

Terminal	Signal level	Remark
CAM SW OUT		Output at ground level
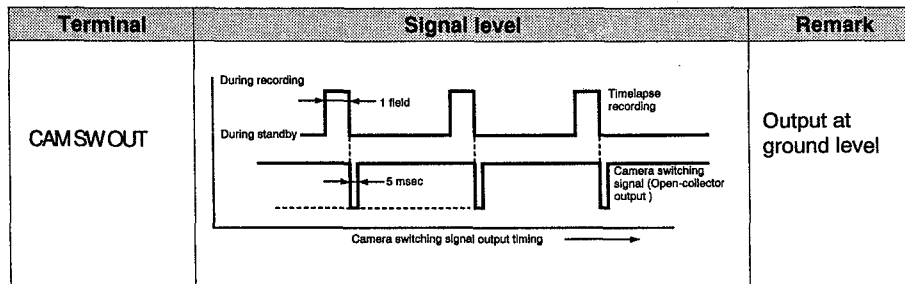
SPECIFICATIONS

GENERAL

Power requirement	:	AC 220 — 240 V, 50/60 Hz
Power consumption	:	34 W
Dimensions	:	435 (W) X 124 (H) X 375 (D) mm
Weight	:	Approx. 8.0 kg
Temperature		
Operating	:	5°C to 40°C
Storage	:	–20°C to 60°C
Operating humidity	:	30% to 80%
Format	:	VHS PAL standard
Tape speed	:	23.39 mm/sec (SP, TL), 11.70 mm/sec (LP)
Recording and playback time	:	3 (VHS SP), 6 (VHS LP), 24, 48, 72, 120, 168, 240, 480, 960 hours (with E-180/ cassette)

VIDEO

Signal system	:	PAL-type colour signal
Recording system		
Luminance	:	FM recording
Colour	:	Down-converted direct recording
Input Line	:	0.5 to 2.0 Vp-p, 75 ohms, unbalanced
Output Line	:	1.0 Vp-p, 75 ohms, unbalanced
Horizontal resolution	:	240 lines (colour) 300 lines (monochrome)
Signal-to-noise ratio	:	43 dB

AUDIO

Number of tracks	:	1
Input	:	–8 dBs, unbalanced
Output	:	–6 dBs, unbalanced
Frequency response	:	100 Hz to 8 kHz
Signal-to-noise ratio	:	40 dB (SP at 3% distortion)
Wow and flutter	:	Less than 0.35% RMS

TIME/DATE GENERATOR

Display	:	Day, month, year, hours, minutes, seconds, recording mode
Character size	:	16 H
Power back up	:	Approx. one year

ALARM

Alarm input	:	Ground input
Alarm output	:	Alarm input throughout
Camera switching output	:	Negative pulse output (approx. 5 msec.)

SERIES RECORDING

Series input	:	Ground input, RCA
Series output	:	Series input, RCA

ACCESSORIES

Provided accessories	:	"R6/AA/UM-3" battery X 3 Power cord X 1

E. & O.E. design and specifications subject to change without notice.